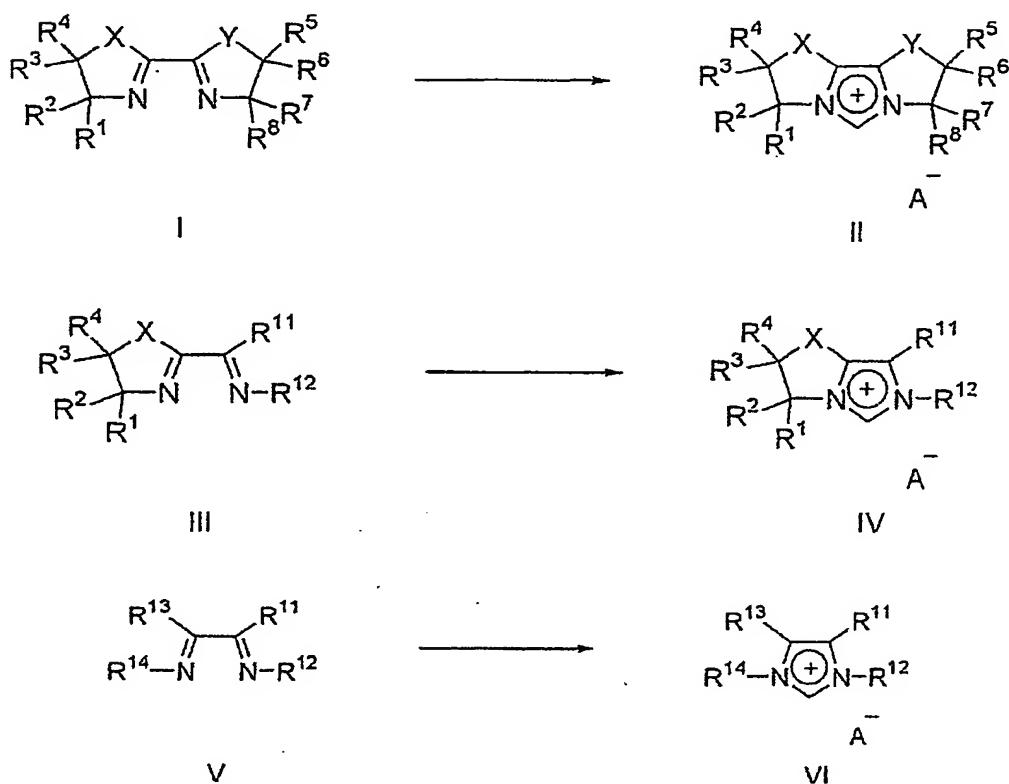


What is claimed is:

1. A process for preparing imidazolium salts of the general formulae II, IV and VI, comprising the reaction of the corresponding substrates I, III and V,

5



10 where

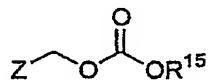
R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹², R¹³ and R¹⁴ are the same or different and are saturated or unsaturated, straight-chain, branched or cyclic, unsubstituted or substituted C₁₋₁₀-alkyl, C₂₋₅-alkenyl, C₂₋₅-alkynyl, C₇₋₁₉-aralkyl or C₆₋₁₄-aryl substituents, or R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R¹¹ and R¹³ may also be hydrogen or, together, form fused, substituted or unsubstituted substituents having 3-7 carbon atoms, R¹¹ and R¹³ may also be -OR¹⁶, -SR¹⁷ or -NR¹⁸R¹⁹, in which R¹⁶, R¹⁷, R¹⁸ and R¹⁹ may each be as defined for the R¹ to R⁸ and R¹¹ to R¹⁴ substituents, and R¹⁶, R¹⁷, R¹⁸, R¹⁹, one of the R¹, R², R⁷,

15

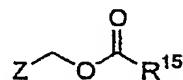
20

- 30 -

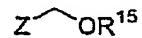
R⁸, R¹² and R¹⁴ substituents may also be a linker L to a further imidazolium salt of the formula II, IV or VI,
 X is O, S, an NR⁹ or CR^{9a}R^{9b} group in which R⁹, R^{9a} and R^{9b}
 5 are each hydrogen, saturated or unsaturated, straight-
 chain, branched or cyclic, unsubstituted or substituted
 C₁₋₁₀-alkyl, C₂₋₅-alkenyl, C₂₋₅-alkynyl, C₇₋₁₉-aralkyl or C₆₋₁₄-
 aryl substituents,
 Y is O, S, an NR¹⁰ or NR^{10a}R^{10b} group in which R¹⁰, R^{10a}, R^{10b}
 10 are hydrogen, saturated or unsaturated, straight-chain,
 branched or cyclic, unsubstituted or substituted C₁₋₁₀-
 alkyl, C₂₋₅-alkenyl, C₂₋₅-alkynyl, C₇₋₁₉-aralkyl or C₆₋₁₄-
 aryl substituents, and
 A⁻ is a mono- or polyvalent, organic or inorganic anion
 15 or a metal complex ion
 with a combination of an alkylating agent of the general
 formula VII, VIII or IX



VII



VIII



IX

20 where Z is a leaving group and R¹⁵ is as defined for R³,
 and a metal salt of the general formula

MA

where M is a mono- or polyvalent metal cation, a
 tetraorganoammonium compound or a triorganosilyl group,
 25 and A is as defined above for A⁻ as a promoter of the
 reaction.

2. The process as claimed in claim 1, wherein R¹, R²,
 R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R^{9a}, R^{9b}, R¹⁰, R^{10a}, R¹¹, R¹², R¹³,
 30 R¹⁴ and R¹⁵ are the same or different and are each
 saturated or unsaturated, straight-chain, branched or
 cyclic, unsubstituted or substituted C₁₋₆-alkyl, C₂₋₄-
 alkenyl, C₂₋₄-alkynyl, C₇₋₁₀-aralkyl or phenyl groups.

3. The process as claimed in claim 1 or 2, wherein the mono- or polyvalent, organic or inorganic anion A⁻ in the general formulae II, IV and VI is a sulfate, halide, 5 pseudohalide, borate, phosphate or metal complex ion or an optionally halogenated sulfonate, carboxylate or acetylacetone ion, and A⁻ is in particular a triflate, mesylate, tosylate, nonaflate, tresylate, benzenesulfonate, brosylate, nosylate, fluorosulfonate, 10 tetrphenylborate, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate (BARF), tetrafluoroborate, hexafluorophosphate, hexafluoroantimonate, acetate, trifluoroacetate, perchlorate, tetracarbonylcobaltate or hexafluoroferrate(III) ion.

15

4. The process as claimed in claim 1 or 2, wherein A⁻ in the general formulae II, IV and VI is a triflate ion.

5. The process as claimed in one or more of claims 1 20 to 4, wherein R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R^{9a}, R^{9b}, R¹⁰, R^{10a}, R^{10b}, R¹¹, R¹², R¹³, R¹⁴ and R¹⁵ are substituted by one or more, identical or different amine, nitro, nitrile, isonitrile, ether, alcohol, aldehyde or ketone groups, carboxylic acid derivatives, in particular 25 esters or amides, halogenated, in particular fluorinated or perfluorinated, hydrocarbon groups, carbohydrate, phosphane, phosphane oxide, phosphane sulfide, phosphole groups, phosphite derivatives, aliphatic or aromatic sulfonic acid derivatives, the salts, esters or amides 30 thereof, silyl functions, boryl groups or heterocyclic substituents.

35

6. The process as claimed in claim 5, wherein one of the R¹, R², R⁷, R⁸, R¹² and R¹⁴ groups is substituted by an azolium salt or a pyridine ring.

7. The process as claimed in one or more of claims 1-

6, wherein the leaving group Z is a halide, pseudohalide or carboxylate and, in particular, an alkylating agent of the general formula VII, VIII or IX is used where Z is a halide and R¹⁵ is an unsubstituted or substituted phenyl, benzyl or C₁-C₄-alkyl groups which may in each case contain one or more substituents, in particular ether, ester or silyl substituents.

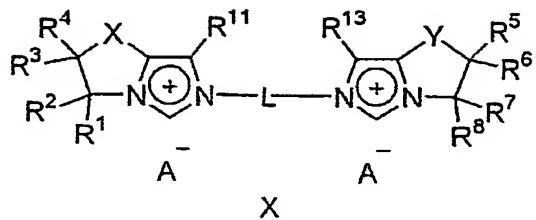
8. The process as claimed in claim 7, wherein the alkylating agent used is chloromethyl pivalate, chloromethyl butyrate, chloromethyl ethyl ether, (2-methoxyethoxy)methyl chloride or (2-chloromethoxyethyl)trimethylsilane and in particular chloromethyl pivalate.

15

9. The process as claimed in one or more of claims 1-8, wherein the mono- or polyvalent metal cation M is a silver(I), alkali metal and alkaline earth metal, lanthanide, lead(II), mercury(II), cadmium(II), thallium(I), copper(II), zinc(II) or aluminum(III) ion, the tetraorganoammonium compound is a tetraalkylammonium compound and the triorganosilyl group is a trialkylsilyl group.

25 10. The process as claimed in one or more of claims 1-9, wherein a metal salt of the general formula MA is used where M is silver(I) and A is as defined in claim 3 or 4.

30 11. The process as claimed in one or more of claims 1-10, wherein one of the R¹, R², R⁷, R⁸, R¹² and R¹⁴ substituents is a linker L to a further imidazolium salt of the formula II, IV or VI, L is in particular a C₁-4-alkylene, C₅₋₁₂-cycloalkylene, C₆₋₁₂-arylene or C₆₋₁₂-heteroarylene group which may optionally be substituted or be interrupted by a heteroatom or a cyclic substituent, and the imidazolium salt more preferably has the general formula X



where the variables are each as defined in claims 1-5.

5

12. The process as claimed in one or more of claims 1-11, characterized in that alkylating agent and metal salt are used in at least stoichiometric amount based on the particular substrate.

10

13. The process as claimed in one or more of claims 1-12, characterized in that a reagent, prepared beforehand, composed of metal salt and alkylating agent as defined in claim 1, in particular a reagent composed 15 of an alkylating agent as defined in claim 7 or 8 and a metal salt as defined in claim 9 or 10 is used.

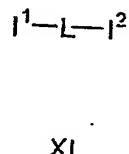
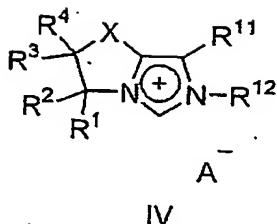
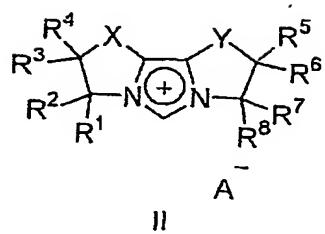
14. The process as claimed in one or more of claims 1-13, characterized in that the substrates are reacted in 20 an organic solvent.

15. The process as claimed in claim 14, wherein the organic solvent is acetone, diethyl ether, methyl tert-butyl ether, petroleum ether, acetonitrile, 25 propionitrile, ethyl acetate, benzene, toluene, xylene, benzine, 1,2-dichloroethane, chloroform or methylene chloride and in particular methylene chloride.

16. A compound of the general formula II, IV or XI

30

- 34 -

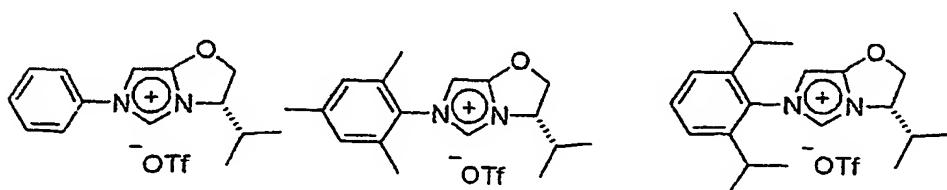
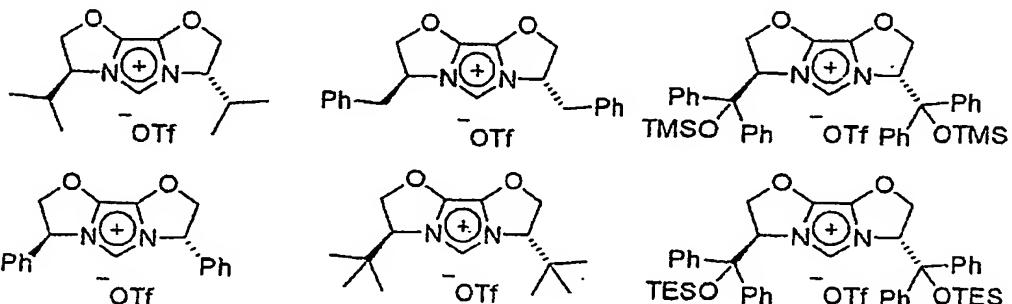


where

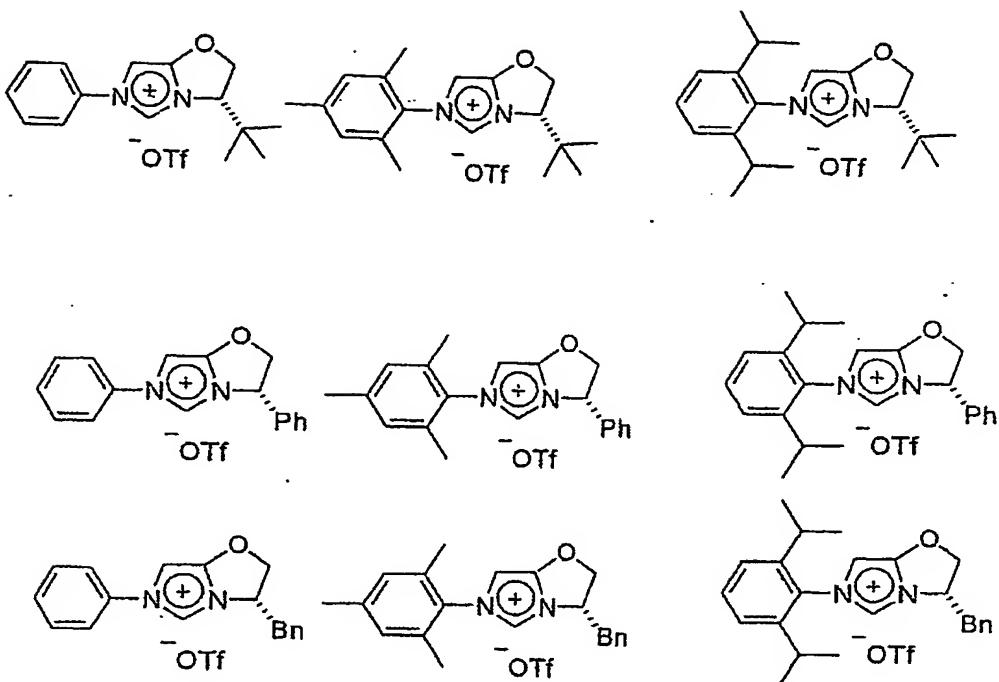
5 I^1 and I^2 are identical or different imidazolium salts of
the formulae II, IV and VI which are joined to L at the
position of the R^1 , R^2 , R^7 , R^8 , R^{12} or R^{14} substituents,
with the proviso that I^1 and I^2 are not both an
imidazolium salt of the formulae VI,
the imidazolium salt of the formula VI, R^1 , R^2 , R^3 , R^4 ,
10 R^5 , R^6 , R^7 , R^8 , R^{11} , R^{12} , R^{13} , R^{14} , X, Y, L and A^- are each
as defined in claim 1.

17. A compound as claimed in claim 16, wherein R^1 , R^2 ,
 R^3 , R^4 , R^5 , R^6 , R^7 , R^8 , R^{11} , R^{12} , R^{13} , R^{14} , X, Y, L and A^-
15 are each as defined in claims 2 to 6 and 11.

18. A compound as claimed in claims 16 and 17 having
the following structural formulae:



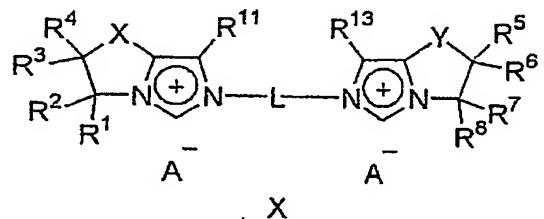
- 35 -



where OTf is trifluoromethanesulfonate (triflate), Ph is phenyl, TMS is trimethylsilyl, TES is triethylsilyl and Bn is benzyl.

19. A compound as claimed in claim 16 or 17 which is a compound of the formula X

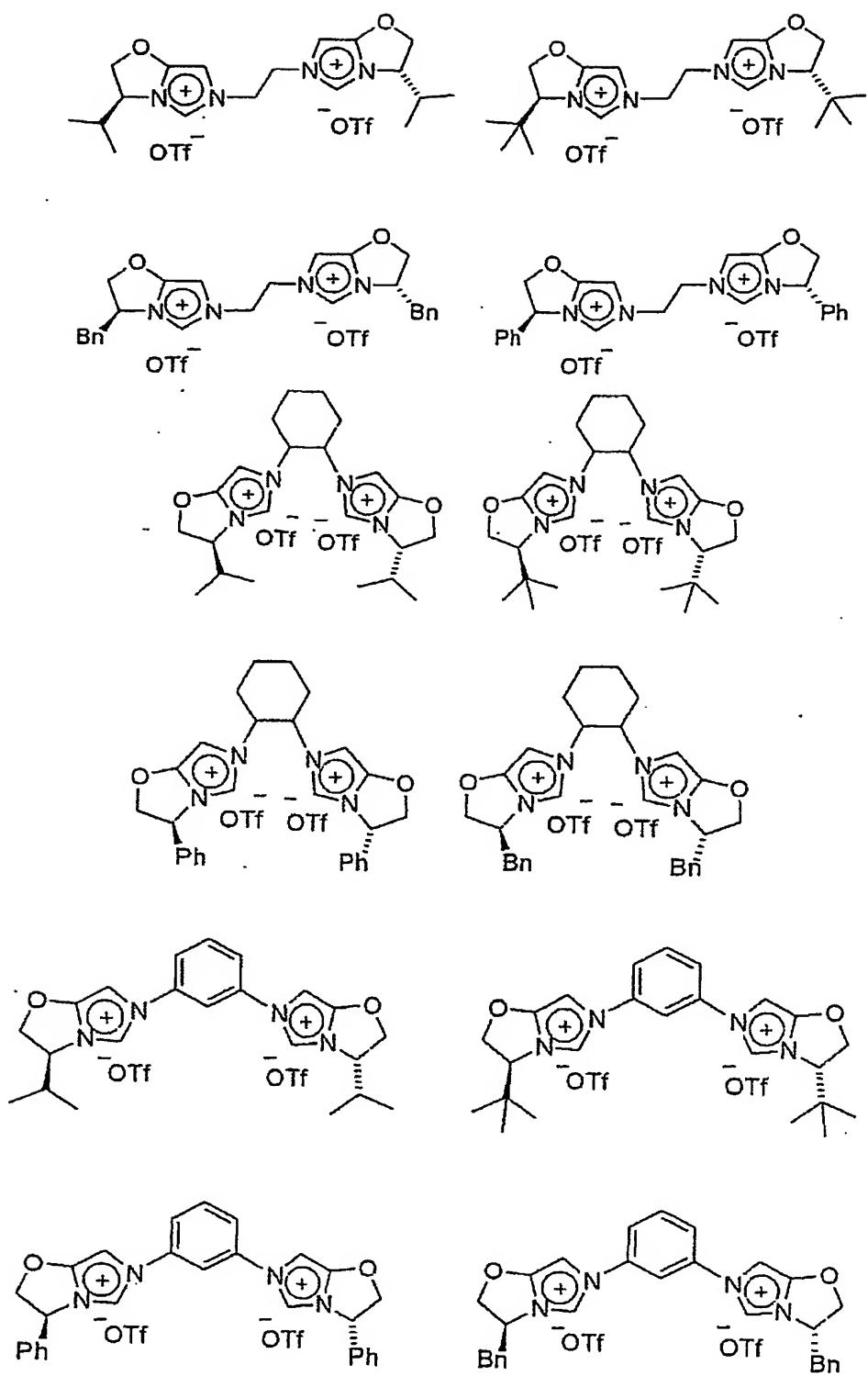
10

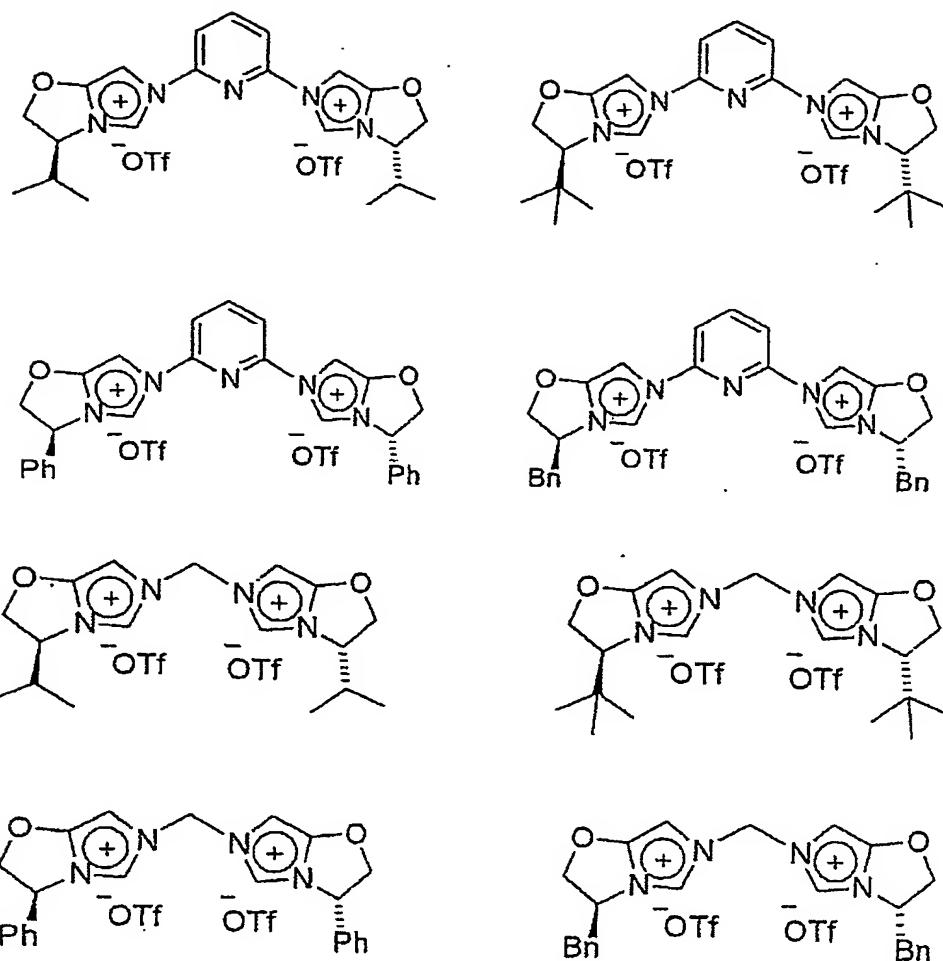


where each variable is as defined in claim 16 or 17.

15 20. A compound as claimed in claim 19 having the following structural formulae:

- 36 -





where OTf is trifluoromethanesulfonate (triflate), Ph is phenyl and Bn is benzyl.

5

21. A compound as claimed in claim 18 or 20 with tetrafluoroborate, mesylate, tosylate, nonaflate or hexafluoroantimonate instead of triflate as the counteranion.

10

22. The use of compounds as claimed in claims 16 to 21 for preparing catalysts in the form of metal complexes of N-heterocyclic carbenes.